BEFORE THE
CALIFORNIA PUBLIC UTILITIES COMMISSION

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Order Instituting Rulemaking Regarding Broadband Infrastructure Deployment and to Support Service Providers in the State of California.	Rulemaking No. 20-09-001

OPENING COMMENTS OF CALIFORNIA INTERNET, L.P. (U-7326-C) DBA GEOLINKS ON ASSIGNED COMMISSIONER'S RULING

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California Internet, L.P. (U-7326-C) dba GeoLinks ("GeoLinks" or the "Company") respectfully submits these comments on the Assigned Commissioner's Ruling issued in the above-captioned proceeding on August 6, 2021 ("ACR"). These comments are timely submitted pursuant to extension granted by the Administrative Law Judge via email on August 20, 2021.

I. INTRODUCTION

GeoLinks is committed to broadband deployment efforts that seek to close the digital divide in California and beyond. As the largest Connect America Fund Phase II ("CAF II") auction winner in California, GeoLinks has committed to provide highspeed broadband service in areas where, absent subsidy funding, "broadband expansion and ongoing service would not be economically feasible."[1] In addition, GeoLinks was named a provisional winner of Rural Digital Opportunity Funding ("RDOF"). The Company applauds the Commission's commitment to expand broadband availability throughout California and for its work to implement the requirements of Senate Bill ("SB") 156 and the creation of a statewide open-access middle mile

[1] FCC Press Release, *Connect America Fund Auction to Expand Broadband to Over 700,000 Rural Homes and Business: Auction Allocates $1.488 Billion to Close the Digital Divide*, released August 28, 2018, at 1.

network ("Statewide Network"). GeoLinks submits these opening comments in furtherance of both of those goals.

II. DISCUSSION

A. Definitions

As an initial matter, GeoLinks asserts that the Commission must amend the definitions for "Middle Mile" and "Last Mile" contained in the ACR. The ACR states the following:

> "Middle Mile" refers to the high-capacity fiber-optic cables that traverse long distances (e.g., 10s-100s of miles) to connect communities to the Internet backbone. These high-capacity lines are analogous to transmission lines for electric utilities, or aqueducts and rivers for water utilities. This is in contrast to the "Last Mile," which refers to the wires or cables that connect a house to the nearest utility pole and connect a community to the middle mile. "Open-Access" refers to a network model that allows any entity to access and utilize the infrastructure at a fair market rate and in a non-discriminatory manner.

These definitions fail to account for other technology types that are used throughout California to provide high speed broadband connectivity.

First, the definition of "middle mile" should not be limited to fiber. GeoLinks has utilized microwave backhaul and fixed wireless middle mile technology for years to connect its own customers and on a wholesale basis for other service providers. Fixed wireless technology allows for fiber-like speeds without the need for expensive, time consuming, and ground disturbing construction required to deploy fiber. GeoLinks has successfully deployed numerous fiber-fast broadband connections to unserved locations for a fraction of the cost of fiber and in a fraction of the time. By way of example, the Company has constructed several fixed wireless links to serve Catalina Island. Rather than relying on cost prohibitive underwater cabling or slow satellite connections, GeoLinks successfully provides middle mile capacity to Catalina Island from mainland California, which it then utilizes for its on-island last mile connections. These middle

mile links are nearly 30 miles long and provide fiber-like capacity and speeds. GeoLinks asserts that limiting "middle mile" to fiber only risks leaving areas where fiber deployment is impossible or economically impracticable unserved. Possibly forever. Therefore, GeoLinks urges the Commission to adopt a technology neutral definition of middle mile.

Second, "Last Mile" should not be limited to "wires or cables." GeoLinks currently utilizes fixed wireless technology to provide last mile services to residential and business customers throughout the state and is currently deploying fixed wireless middle mile and last mile facilities to meet its CAF II obligations. While GeoLinks believes that "wires or cables" may have been used in the ACR to distinguish fixed broadband connections from *mobile* wireless connections, to exclude the possibility of fixed wireless last mile connections from the definition of "Last Mile" only serves to block would-be providers from deploying to unserved areas. Moreover, it does not comport with the Commission's goal of implementing Open Access in a "non-discriminatory manner."

Lastly, Last Mile is not solely a connection between "a house and the nearest utility pole." Last mile connections can be from a house to fixed wireless tower, a transmission point located on the rooftop of a building or mountain, underground conduit, etc. Limiting the definition of last mile to connections involving a utility pole further limits the types of service providers that can be considered last mile providers for the purposes of implementing SB 156 and, again, runs contrary to the idea of "non-discriminatory."

Catalina Island is a prime example of the need for a hybrid approach to middle mile and last mile construction. There are numerous unserved areas within California that will not fall within last mile distance of the proposed Statewide Network fiber routes. For these areas, it may not be feasible to deploy fiber middle mile to serve them due to geographical constraints (mountains, forests, distance, etc.) or cost constraints. Or it may not be feasible within federal

funding timeframes.[2] For the sake of these areas (and all unserved locations throughout the state), alternative technologies must be considered as a compliment to fiber middle mile and must be allowed to interconnect to the Statewide Network.

For these reasons GeoLinks urges the Commission to amend its proposed definitions as follows:

- Middle Mile - the high-capacity ~~fiber optic cables~~ broadband connections (e.g. fiber, microwave, etc.) that traverse long distances (e.g., 10s-100s of miles) to connect communities to the Internet backbone.
- Last Mile - the ~~wires or cables~~ transmission methods (i.e. wires, cables, fixed wireless connections, etc.) that connect a house to the nearest ~~utility pole~~ broadband connectivity point and connect a community to the middle mile.

B. Issues for Public Comment

1. Identifying Existing Middle Mile Infrastructure

The ACR seeks comment on, among other things, what constitutes sufficient capacity for middle mile routes and, for routes identified as being open access, how the Commission would verify claims of sufficient capacity. GeoLinks believes that this question is dependent on too many factors to provide a blanket statement regarding what would make that capacity "sufficient." Specifically, this question would hinge on where within the network this existing infrastructure falls, how many households could be served off of it, how much capacity is currently available, etc.

GeoLinks asserts that the Statewide Network must be capable of allowing interconnecting service providers to offer all or substantially all unserved households within last mile range of the

[2] *See* ACR at 5 noting that federal funding must be encumbered and spent in a limited time period.

Statewide Network at least 100 Mbps/ 20 Mbps service. While subscribership in these unserved areas may never reach 100%, ubiquitous broadband availability cannot be reached if only a portion of unserved households can actually subscribe to broadband service. This concept was important to the Federal Communications Commission ("FCC") as both the CAF II and RDOF programs require support recipients to engineer a network that can support at least 95% subscribership. While that requirement only applies to a support recipient's network and not an open-access network, the concept should be the same – build something that will allow substantially all unserved locations to be served. For these reasons, GeoLinks urges the Commission to require that any open access middle mile network can support a high level of subscribership at the 100/20 Mbps level or, at minimum, has a plan in place to expand capacity to be able to accommodate a high level of subscribership by a certain date.

In addition, GeoLinks asserts that the Statewide Network must also have sufficient capacity to allow additional middle mile connection points. Not all unserved communities are located along established highway routes, where the proposed Statewide Network will be built. While many unserved homes will fall within last mile distance of the Statewide Network, those communities that don't may require additional middle mile buildout. The Statewide network must account for this possibility and allow for interconnection of additional middle mile facilities sufficient to support a high level of subscribership at the 100/20 Mbps level in these unserved areas.

Regarding Commission verification of sufficient capacity for existing middle mile network routes that should be considered part of the Statewide Network, GeoLinks suggests requiring the owners of the existing middle mile network to provide sample contracts, service level agreements, information regarding conduit capacity, etc. Presumably, being included in the Statewide Network would be financially advantageous to the owner of the existing middle mile route. Especially in light of the possibility of the state entering Indefeasible Rights of Use leases ("IRUs"), as discussed

in more detail below. Therefore, the Commission should require route owners to provide the information listed above (and any other information the Commission deems necessary) if they wish to have their route(s) considered part of the Statewide Network.

In addition, the ACR asks if there are existing open-access middle mile routes on the county highway routes listed in Attachment A, thereto. GeoLinks urges the Commission to consider inclusion of middle mile options beyond fiber as it makes its assessment of existing routes. As discussed above, some technology types, such as fixed wireless, can provide fiber-like middle mile capacity but without the cost, environmental impacts, and lengthy buildouts that fiber requires. When open access middle mile is available via alternative technologies, the Commission should be willing to consider those for purposes of inclusion it the Statewide Network, subject of course to the same requirements as noted above. This will not only serve to keep the costs of middle mile construction down but will help aid in the completion of the Statewide Network within federally mandated timeframes.[3]

2. Priority Areas

The ACR asks what indicators the Commission should use to identify priority Statewide Network locations. In doing so, the ACR provides examples of possible indicators (i.e., areas with no known middle-mile network access, regions underserved by middle-mile networks, regions without sufficient capacity to meet future middle-mile needs) and asks whether it is reasonable to assume counties with a disproportionately high number of unserved households are areas with insufficient middle-mile network access. While access to middle mile infrastructure is a factor to consider when assessing why areas remain unserved, the Commission should not view lack of infrastructure as the sole reason areas remain unserved.

[3] *See* FN 2, *infra*.

For the purposes of assessing how to prioritize locations for the Statewide Network, GeoLinks believes that the Commission should first prioritize areas with the most unserved locations. It stands to reason that these unserved areas are also the ones that are most likely to lack any open access middle mile network, but that may not necessarily be the case. Since the goal of the Statewide Network is to connect California's unserved and underserved communities, those are the areas that should be prioritized first.

The issue of why areas remain unserved is more complicated than solely whether middle mile access is available. Instead, lack of infrastructure is a symptom of a larger issue – economic viability. If a project is not economically viable, even with middle mile access at affordable rates (or 100% subsidized rates), it is possible that unserved areas will remain unserved. This is especially true for unserved areas that are not near any of the proposed Statewide Network fiber routes (and would likely require additional middle mile construction to serve). For these reasons, GeoLinks urges the Commission to focus on the end goal of connecting unserved and underserved communities first and plan deployment of the Statewide Network accordingly.

3. Leasing Existing Infrastructure

The ACR seeks comments on whether the state should enter into IRUs with exiting middle mile network operators. Presumably, this would be to ensure continuity of the state's fiber route plan set forth in Attachment A to the ACR without the need to build redundant fiber facilities. GeoLinks supports the idea of leveraging existing assets and encourages the state to consider and enter into IRUs. This will result in significant cost savings, which could allow funds to be reallocated to either build additional middle mile or support other broadband deployment efforts throughout the state.

The ACR asks whether the state's investment will be diminished when the IRU leases end in 20-30 years and whether existing networks will run out of space capacity. While this is a

possibility, GeoLinks believes that the state can take precautions against such diminished investment now. GeoLinks asserts that another requirement for existing middle mile operators should be to show not only current capacity, but the ability to add additional capacity and information regarding what that would entail (additional fiber strands on or in existing infrastructure, the need for additional construction or trenching, building of aerial facilities, etc.). While the most cost-effective option may be the best option in most cases (*e.g.*, using existing infrastructure), it is not the only factor that should be considered when designing the Statewide Network. If existing infrastructure is near capacity currently with no plan for expanding capacity, then including it in the Statewide Network may not be in the best interest of unserved Californians. GeoLinks encourages the Commission to assess all factors when determining whether existing infrastructure should be included in the Statewide Network.

4. Interconnection

The ACR asks questions regarding how the Statewide Network will connect to other networks in order to deliver services. GeoLinks asserts that these questions cannot easily be answered in response to the ACR because the answers are dependent on too many factors. Whether the Statewide Network should interconnect to other networks, servers, etc., and whether additional exchange points are necessary depends on the technology being used for the last mile connection, the location of existing service provider infrastructure, if any (i.e., towers, loops, metros, nodes, data centers, etc.), customer density at the interconnection point, whether additional middle mile is needed to connect a community far from the Statewide Network, the specific engineering needs of the connecting service provider, available capacity, etc.

Instead of seeking the answers solely from this ACR, GeoLinks urges the Commission to hold a series of workshops/ roundtable events administered by the Third-Party Administrator to discuss these issues with service providers so that the Commission can develop technology neutral

methodologies for how interconnection with the Statewide Network can occur. Specifically, GeoLinks suggests individual workshops/ roundtables with different categories of service providers (*i.e.*, ILECs, cable companies, fixed wireless providers, mobile wireless providers, other competitive providers, etc.). GeoLinks also encourages the Commission to hold workshops/ roundtables with existing middle mile and backhaul providers and municipal and tribal groups to learn what their specific needs and concerns are. This robust fact gathering will help the Commission learn more about the interconnection needs of different service providers, gain an understanding of deployment processes and timelines for different technology types, and determine the best path forward regarding interconnection.

5. Network Route Capacity

The ACR seeks comment on how to determine the amount of capacity that should be built into the network to meet existing and future demands. Specifically, the ACR asks the following:

- How many strands of fiber should the network deploy for each route?
- Are there other requirements or standards the Commission needs to consider to determine sufficient capacity?
- Should the network also deploy additional conduit within each route for potential future expansion?
- Should these factors change based on the population density and distance from the core network?

As noted above, GeoLinks does not offer specific information regarding what middle mile network elements are required to allow for adequate capacity (number of fiber strands, number of nodes, etc.) as capacity needs will vary throughout the Statewide Network. However, the Company reiterates that the Statewide Network must be capable of allowing i) interconnecting service providers to offer all or substantially all unserved households surrounding the Statewide Network at least 100 Mbps/ 20 Mbps service and ii) additional middle mile connection points to provide

100/20 Mbps service to unserved communities that are not within last mile connection range of the Statewide Network. Specifically, GeoLinks suggests that the Commission look to the requirements of the CAF II and RDOF programs for guidance on this matter. Both programs require support recipients to engineer a network that can support 95% subscribership at a certain level of service. GeoLinks urges the Commission to require that any open access middle mile network can support a high level of subscribership at the 100/20 Mbps level or, at minimum, has a plan in place to expand capacity to be able to accommodate a high level of subscribership by a certain date.

In addition, GeoLinks urges the Commission to require that any new construction for the Statewide Network include extra capacity or have a plan for adding capacity to every route, if needed. The Statewide Network cannot be viewed as a "one-and-done" solution. As populations shift, telecommunications needs change, and technologies improve we cannot anticipate how much capacity will be needed at any given place along the Statewide Network in decades to come. Perhaps capacity needs in some areas will never change, perhaps they will shrink, or perhaps in some areas they will increase 10-fold. Plans should be put in place for every route of the Statewide Network to accommodate capacity increase if needed down the road. Therefore, GeoLinks supports the idea of additional conduit being including in any fiber route. The Company also urges the Commission to ensure that the Statewide Network also allows for non-conduit-based connections such as fixed wireless connections (which may require aerial facilities or other interconnection options). In short, the Statewide Network must allow for scalability and technology neutral flexibility to ensure that it is a "future-proof" solution.

Lastly, regarding how factors should change based on the population density and distance from the core network, GeoLinks believes that while initial capacity of a particular fiber route can be tailored to the specific needs of the surrounding area, the same concept discussed above should

be implemented. For any segment of the Statewide Network, there should be a plan in place to allow for whatever upgrades, changes, etc. may be needed to accommodate the surrounding communities. If the Statewide Network incorporates existing middle mile network, these network segments should be scalable or have a plan in place to become scalable. Ensuring a plan is in place to allow for scalability now will avoid the risk of the expensive Statewide Network becoming obsolete.

III. CONCLUSION

GeoLinks applauds the Commission's commitment to expand broadband availability throughout California and for its work to implement the requirements of SB 156. For the foregoing reasons, GeoLinks urges the Commission to establish technology neutral definitions of "last mile" and "middle mile," ensure existing infrastructure routes have sufficient capacity or the ability to increase capacity as needed, prioritize areas with the most unserved locations rather than areas that lack middle mile access, consider all factors when determining whether to lease existing infrastructure, task the Third-Party Administrator with administering a series of workshops/ roundtables with various stakeholders to determine the best path forward for interconnection rules, and ensure scalability throughout the entire Statewide Network.

Respectfully submitted,

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